**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD**
**CENTRAL COAST REGION**



**CLEANUP OR ABATEMENT ORDER NO. 98-091**
September 3, 1998

**. Concerning**

**CHEVRON PIPE LINE COMPANY**

**CHEVRON ESTERO MARINE TERMINAL**
4000 **HIGHWAY 1, MORRO BAY**
**SAN LUIS OBISPO COUNTY**

The California Regional Water Quality Control Board, Central Coast Region (hereafter Board) finds:

1. Chevron Pipe Line Company, a California corporation (hereafter Chevron) has discharged petroleum products including diesel, cutter stock, and crude oil to soil and ground water beneath its Estero Marine Terminal facility, and the adjacent beach and highway at Morro Bay in San Luis Obispo County. These discharges were reportedly caused by historic leaks from Chevron's pipelines, underground storage tank, and possibly a nearby tank farm.

2. Chevron's Estero Marine Terminal facility has been used for petroleum hydrocarbon storage and transfer. Petroleum products were transferred from an inland oil field in San Joaquin Valley and a tank farm on a bluff overlooking the beach through a network of underground and aboveground pipelines. The pipelines run parallel and adjacent to Toro Creek at the facility, cross under Highway 1 and Atascadero State Beach, and extend to Chevron's offshore marine terminal. The pipelines adjacent to Toro Creek are active.

3. Chevron's Estero Marine Terminal is located immediately north of the City of Morro Bay, and on the southern bank of Toro Creek. The facility and surrounding area are underlain by alluvial, fluvial, and marine sediments placed from the drainage of the Toro Creek watershed and previous ocean deposits. The Quatemary alluvial and fluvial deposits are generally composed of interbedded clay, sands, silty sands, clayey sands and gravels. In most areas, these unconsolidated deposits extend to approximately 10 to 30 feet in depth before bedrock is encountered. The bedrock is composed of Cretaceous Franciscan Formation. Chevron's facility is located within the Toro Creek Ground Water Basin. Ground water is shallow in the area, and its depth varies from two feet beneath the beach to approximately ten feet inland. Nearby surface waters include Toro Creek, the creek estuary and the Pacific Ocean. Ground water from the site discharges primarily into Toro Creek and the Pacific Ocean. Toro Creek discharges into the Pacific Ocean. At its estuary near the western end of the facility and on the beach, Toro Creek also partially recharges ground water.

4. Several investigations have been conducted by Chevron since 1994. Extensive soil and ground water contamination was detected under most portions of the facility as well as under portions of the bank of Toro Creek, Highway 1, and the beach up to within 100 feet of the Mean Sea Level line (hereafter

inclusively the Site). Soil contaminants include:

TPH[1] up to 46,000 ppm[2]
Benzene up to 0.068 ppm
Toluene up to 0.13 ppm
Ethylbenzene up to 0.02 ppm
Xylenes up to 0.26 ppm
Total PAHs[3] up to 130.0 ppm

Separate-phase petroleum product was found floating on ground water and extending under most portions of the Site. Dissolved-phase contamination was also detected in one-time sampling well-points and some of the monitoring wells, including the following:

TPH up to 390,000 ppb[4]
Benzene up to 5.9 ppb
Toluene up to 13 ppb
Ethylbenzene up to 2.1 ppb
Xylenes up to 3 1 ppb
Acetone up to 41 ppb
PAHs were not analyzed.

5. A contaminated soil excavation was conducted in early 1996 on a small portion of the Site on Atascadero State Beach to cleanup contamination apparently resulting from leaks of Chevron's pipelines. Soil contamination had extended below the ground water table and an oil sheen was observed in ground water in the excavation. Separate phase petroleum product was found extending beneath the beach west of Highway 1. However, ground water confirmation sampling was not performed during the excavation due to the presence of separate phase petroleum in the excavation approximately 150 feet away from the Mean Sea Level line.

6. On March 3 1, 1997, Chevron submitted a report entitled Draft *for Discussion, Feasibility Study of Remedial Alternatives and Remedial Action Plan, Chevron Estero Marine Terminal* (draft FS/RAP). Board staff has reviewed this report and informed Chevron that the assumptions, interpretations, conclusions, and recommendations of the report were generally inadequate as follows:

a) Beneficial uses of underlying ground water identified in the Basin Plan are not acknowledged as a basis for remediation alternative assessment.

b) The nature and extent of ground water contamination is not adequately determined and ground water impacts and the dissolved phase plume existing in ground water are not acknowledged.

c) Potential migration of contamination plumes in soil and ground water to Toro Creek and Pacific Ocean is not properly acknowledged and considered.

d) None of the existing complete and potentially complete exposure pathways are acknowledged and considered.

e) Not all available and potentially applicable and/or feasible remedial technologies, are considered and evaluated.

7. In a letter dated July 15, 1997, the Executive Officer described the deficiencies of Chevron's previous investigations and sampling as well as deficiencies in quality assurance and quality control (QA/QC), and requested Chevron to submit a work plan and a QA/QC plan for further characterizing ground water contamination at the site. During a meeting with Chevron, Board staff , agreed that more monitoring data are needed to determine the need for further site assessment and appropriate remedial actions for the site. On August 28, 1997, the Executive Officer issued Monitoring and Reporting Program (MRP) Order Number 97-

1 TPH: total petroleum hydrocarbon.
2 ppm: parts per million.
3 PAHs: polynuclear aromatic hydrocarbons.
4 ppb: parts per billion.

102 to ensure some of the deficiencies during previous sampling and analyses are properly corrected and ground water monitoring is properly conducted by implementing appropriate QA/QC procedures. In addition, Board staff has begun to collect and analyze split samples for QA/QC checking since the third quarter 1997 sampling event.

8. The Board's split sample results indicate that Chevron's sampling results have consistently reported lower concentrations (in most cases, non-detected) than those of the Board's spilt samples. Results of the Board's split samples also indicate ground water underneath the site, beach, and probably State highway continues to be adversely impacted with both separate- and dissolved-phase petroleum hydrocarbons. Dissolved-phase contamination includes:

TPH up to 172,000 ppb
Total PAHs up to 43.6 ppb

9. In letters dated July 1.5, 1997, August 28, 1997, December 1, 1997, and February 5, 1998, the Executive Officer repeatedly pointed out the deficiencies that occurred during Chevron's previous investigations and ground water monitoring. Chevron's responses to these letters did not correct the deficiencies.

10. On March 24, 1998, the thickness of separate phase products in extraction well EW-1 was observed to sharply increase to almost 4 feet from previous quarter's 0.03 feet. The previous maximum thickness was 0.37 feet. Board staff requested Chevron to properly identify the cause of the separate phase product surging and determine its source and extent. During a meeting with Chevron on April 2, 1998 and a telephone conversation on April 16, 1998, Board staff requested Chevron to address this issue in its FS/RAP. Chevron argued that the almost 4-foot increase in separate-phase product thickness was caused by EL Nino. Regional Board staff indicated that the free product surging is not likely caused by El Nino, but is probably an indication of incomplete source investigation and /or active leaking.

11. By a letter dated February 5, 1998, the Executive Officer rejected Chevron's draft FS/RAP and directed Chevron to submit a revised FS/RAP, specifically requesting Chevron to rewrite the FS/RAP based on reliable and site-specific data and address the deficiencies in the draft FS/RAP. However, the rewritten FS/RAP received on May 5, 1998 was basically the same as the previously rejected draft FS/RAP, except an acknowledgment of the existence of dissolved phase contamination. Chevron attempted to justify its failure to improve the FS/RAP with a comparison to a closed site located in a non-water-bearing zone outside the Morro Creek Ground Water Basin. The comparison was made incorrectly and inappropriately, because the two sites have obviously different hydrogeological sittings as well as different levels and extents of contamination. Furthermore, Board staff has repeatedly informed Chevron that the Board evaluates each site based on its site-specific conditions, and therefore comparison with other site(s) with different conditions and hydrogeological sittings is not appropriate. In addition, the FS/RAP still simply attributes free product surging in well EW-1 to a raising ground water table caused by El Nino whereas ground water elevation in EW-I was similar to, and slightly lower than the previous winter.

12. Based on the above, the rewritten FS/RAP is incomplete.

13. Discharge of petroleum products and their chemical constituents into waters of the State violates the California Water Code and the Central Coast Region Water Quality Control Plan (hereafter Basin Plan). By discharging petroleum products into soil and ground water Chevron has created, or threatens to

create, a condition of pollution in ground water, the ocean and Toro Creek.

14. The Basin Plan prohibits unauthorized discharges of oil or residuary products of petroleum to waters of the state (Chapter 5, Discharge Prohibitions).

15. Pursuant to the Basin Plan (Chapter 2, Present and Potential Beneficial Uses), the present and potential beneficial uses of the ground water beneath the site and vicinity areas include domestic and municipal water supply, agricultural water supply, and industrial use.

16. Pursuant to the Basin Plan (Table 2-1, Identified Uses of Inland Surface Waters), the present and potential beneficial uses of the surface water in Toro Creek and its estuary include domestic and municipal water supply, agricultural water supply, ground water recharge, water contact recreation, . non-contact water recreation, wildlife habitat, cold and warm fresh water habitat, migration of aquatic organisms, spawning, reproduction, and/or early development, rare, threatened and endangered species, estuary habitat, freshwater replenishment, and commercial and sport fishing.

17. Pursuant to the Basin Plan (Table 2.2 Existing and Anticipated Uses of Coastal Waters) existing beneficial uses of marine waters surrounding and adjacent to beaches of Estero Bay include: water contact recreation, non-contact water recreation, navigation, marine habitat, shellfish harvesting, rare, threatened and endangered species, wildlife habitat, and commercial and sport fishing.

18. Several components of petroleum products and crude oil are hazardous and could produce significant increased risks of cancer if concentrations of these chemical components in drinking water exceed the Maximum Contaminant Levels established by the United States Environmental Protection Agency or California Department of Health Services. Furthermore, petroleum products create adverse taste and odor conditions in water making it unsuitable for use as drinking water. Various petroleum products have been shown to be toxic to aquatic biota and the marine ecosystem.

19. SWRCB Resolution No. 92-49, Section III G., provides the Regional Board shall: "Ensure that dischargers are required to cleanup and abate the effects of discharges in a manner that promotes attainment of either background water quality, or the best water quality which is reasonable if background levels of water quality cannot be restored, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible; in approving any alternative cleanup level less stringent than background (Section 2550.4 of Chapter 15), any such alternative cleanup level shall:

a) Be consistent with maximum benefit to the people of the state;

b) Not unreasonably affect present and anticipated beneficial use of such water;

c) Not result in water quality less than that prescribed in the "Water Quality Control Plans and Policies adopted by the State and Regional Water Boards."

20. SWRCB Resolution No. 92-49 provides that the goal for cleanup should be to remove pollutants to background levels. If a Regional Board determines that achieving background is not feasible it may set a less stringent cleanup level. However, the cleanup level must be the most stringent level that is technologically and economically achievable and in no case can the cleanup level exceed the level needed to protect current and designated beneficial uses of the

receiving water. In addition, the cleanup level must be stringent enough that it does not pose a threat to public health or safety. Finally the cleanup level must be consistent with the maximum benefit to the people of the state.

21. This enforcement action is being taken for the protection of the environment and as such is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21000, et seq.) in accordance with Sections 15307 and 15308, Chapter 3, Title 14, California Code of Regulations.

IT IS HEREBY ORDERED, pursuant to Sections 13267 and 13304 of the California Water Code, that Chevron Pipe Line Company, their agents or assigns, shall clean up degraded soil and ground water at and near the Site, as follows:

1. Chevron shall continuously operate the separate-phase product removal system currently in place until authorized to cease by the Executive Officer.

2. By **October 2, 1998,** Chevron shall submit a complete investigation work plan to:

   a) Locate and determine the unidentified separate phase sources.

   b) Identify the complete extent of all such sources, particularly, but not limited to, around the extraction well EW-1.

   c) Completely delineate vertical and horizontal extent of soil and ground water pollutant plumes, including the location of all separate-phase product plumes.

   d) Analyze fate and transport of pollutants from soil to ground water and surface waters.

   The investigation work plan shall include proposed soil and ground water sampling locations, a sample and analysis plan, a QA/QC plan, and an implementation schedule. The investigation work and implementation schedule must respond to all comments in the Executive Officer's letters dated July 15, 1997, August 28, 1997, December 1, 1997, February 5, 1998, and August 17, 1998, and must be acceptable to the Executive Officer.

3. By **December** 4.1998, Chevron shall submit an investigation report showing the complete extent of soil and ground water degradation at and near the Site, including the identity and extent of all separate phase sources, and locations of proposed new separate phase extraction wells to ensure the most efficient and effective separate-phase product removal.

4. **By January 8, 1999,** Chevron shall commence active separate-phase product removal in accordance with a method acceptable to the Executive Officer and continue active removal until authorized to reduce or cease work by the Executive Officer.

5. By **February 5, 1999,** Chevron shall submit a cleanup plan and alternative analysis (Chevron may choose to refer to it as an FS/RAP) that contains a plan for cleanup of the soil and ground water contamination at the site to background, or which contains a demonstration, in compliance with SWRCB Resolution 92-49, that cleanup to background is not feasible. If the plan demonstrates that cleanup to background is not feasible, it must propose a cleanup project that will achieve the most stringent cleanup level that is feasible but in no case can the cleanup project fail to protect the beneficial uses of ground and surface water designated in the Basin Plan. Deficiencies in the previous versions of FS/RAP shall be corrected and addressed. Particularly, the potential impact to surface and ground water by high levels of soil contamination and the completeness of separate-phase product recovery and dissolve-phase petroleum cleanup shall be

properly addressed. All available and potentially applicable remedial technologies, such as but not limited to air sparging, oxygen-releasing compounds, and limited excavation, shall be considered . and evaluated.

6. Chevron shall comply with Monitoring and Reporting Program No. 97-102, and any revisions thereof.

All technical and monitoring reports required in conjunction with this order are required pursuant to Section 13267 of the California Water Code and shall include a statement by Chevron or an authorized representative of Chevron certifying under penalty of perjury under the laws of the State of California that the report is true, complete, and accurate. Hydrogeological reports and plans shall be prepared by, or under the direct supervision of, and signed and stamped by a Registered Geologist and/or an appropriately Registered Engineer.

**FAILURE TO COMPLY WITH THE PROVISIONS OF THIS ORDER MAY SUBJECT YOU TO FURTHER ENFORCEMENT ACTION, INCLUDING BUT NOT LIMITED TO, ASSESSMENT OF CIVIL LIABILITY UNDER SECTIONS 13268, 13350, AND 13385 OF THE CALIFORNIA WATER CODE AND REFERRAL TO THE DISTRICT ATTORNEY OR ATTORNEY GENERAL FOR INJUNCTIVE RELIEF AND CIVIL OR CRIMINAL LIABILITY.**

Roger W. Briggs, Executive Officer

9-3-98

Date

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